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ABSTRACT

The University of Pittsburgh model addresses itself to the humanization of education through individualized instruction. Large blocks of regular courses are replaced by peer group interaction, independent study, small seminars, and simulated modules of instruction. Throughout his pre- and inservice years, the trainee plans with an advisor his own learning program--as he later is expected to plan learning programs with his elementary school pupils. During preservice training he is part of a guidance program, concerned with his personal as well as professional development; he also selects courses in academic and clinical sequence. Teacher competencies are developed in a clinical school, where the trainee comes as an observer, tutor, assistant teacher, student teacher, and intern. The school is a cooperative project of the college, local schools, teacher organizations, and state or federal agencies. The model also advises systematic feedback and cooperation between the research-oriented and operation-oriented faculty in the program's implementation. (See ED 034 076 for a readers' guide to the nine funded models.) (LP)

Brief Title:

Guide to
University of Pittsburgh
Teacher Education Model

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Southworth

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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# A GUIDE TO
# A MODEL OF TEACHER TRAINING
# FOR THE INDIVIDUALIZATION OF INSTRUCTION

Horton C. Southworth

Published by
ERIC Clearinghouse on Teacher Education
Number One Dupont Circle, N.W.
Washington, D.C. February 1970

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The following Guide is one of the nine which appears in the publication A Reader's Guide to the Nine Models for Preparing Elementary Teachers. The Guide is available free in limited quantity from the ERIC Clearinghouse on Teacher Education; for $4.00 from American Association of Colleges for Teacher Education, One Dupont Circle, Washington, D.C. 20036; and for $1.25 in microfiche and $15.90 in hard copy from the ERIC Document Reproduction Service (EDRS), 4936 Fairmont Ave., Bethesda, Md. 20014. The order number at EDRS is ED 034 076.

The Clearinghouse is publishing each of the nine guides separately as well as collectively for the convenience of those readers interested in a specific elementary teacher education model. The above individual Guide also is available free in limited quantity from the Clearinghouse and for $0.25 in microfiche and $2.50 in hard copy from EDRS. An abstract of the above Pittsburgh model will appear in the May 1970 Research in Education.

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# Introduction

On October 16, 1967, the U.S. Office of Education issued a request for the development of proposals on educational specifications for comprehensive undergraduate and inservice teacher education programs for elementary teachers. (The term elementary teacher included preschool teachers and teachers through grade 8.)

These proposals were for the design phase (phase I) of an intended three-phase project. By January 1, 1968, 80 proposals had been received. On March 1, 1968, the Bureau of Research awarded nine contracts to design conceptual models for programs for the training of prekindergarten and elementary school teachers, for the preservice as well as inservice components. These models were completed October 31, 1968.

Reports on phase I have been made under the following titles: A Model for the Preparation of Elementary School Teachers (Florida State University), G. Wesley Sowards, project manager; Behavioral Science Elementary Teacher Education Program (Michigan State University), W. Robert Houston, project director; A Competency-Based, Field-Centered Systems Approach to Elementary Education (Northwest Regional Educational Laboratory), H. Del Schalock and James R. Hale, editors; Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers (Syracuse University), William Benjamin and others, authors; The Teacher-Innovator: A Program To Prepare Teachers (Teachers College, Columbia University), Bruce R. Joyce, principal author.

Also, Georgia Educational Model Specifications for the Preparation of Elementary Teachers (The University of Georgia), Charles E. Johnson, Gilbert F. Shearron, and A. John Stauffer, directors; Educational Specifications for a Comprehensive Elementary Teacher Education Program (The University of Toledo), George E. Dickson, director; A Model of Teacher Training for the Individualization of Instruction (University of Pittsburgh), Horton C. Southworth, director; and Model Elementary Teacher Education Program (University of Massachusetts), Dwight Allen, principal investigator, and James M. Cooper, project director.

In phase II, several institutions are studying the feasibility of developing, implementing, and operating a model program based upon specifications in phase I. In the third phase, the U.S. Office of Education hopes to be able to support implementation of some of the model proposals for restructuring teacher education.

Since the models cover almost 6,000 pages devoted to detailed specifications of behavioral objectives, materials, treatments, evaluation of specific elements of the programs, and the like, the ERIC Clearinghouse on Teacher Education, on April 15-16, 1969, sponsored in collaboration with the American Association of Colleges for Teacher Education (AACTE) which acts as its fiscal agent, a writers' conference in which key personnel involved in developing the models wrote guides to their specific programs.

A second-day of verbal interaction followed, at which time the writers discussed their personal reactions to all of the models and past, present, and future implications for teacher education. The panelists wanted to make it clear that in their discussion the models were being described at but one point on a continuum. They called the models catalytic agents which have generated a great deal of discussion, interaction, and continuing change. At this conference they said it was important for them to explore the range of alternative interpretations of issues such as, "What are behavioral objectives? What is a model? What does it mean to personalize? To individualize?" They said that some kind of projection needed to be made about what remains to be done---either by resolving issues, or if they are resolved, to act upon them. This whole exercise [the writers' conference] will have made a major contribution to teacher education if it focuses on the issues at the center of this whole models effort and helps to extend the models, they said.

This guide to the models should assist those who are interested in learning about or implementing them. The entire collection of models is available from the ERIC system in either hard copy or microfiche and from the Government Printing Office (GPO) in a honeycomb binding. The ERIC ordering address is: EDRS, The National Cash Register Co., 7936 Fairmont Avenue, Bethesda, Md. 20014. The GPO address is: The Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The reports must be ordered by number. Any request without order numbers will be returned. Some of the reports listed do not have ERIC order numbers. These reports may not be ordered until the listing appears in Research in Education, the monthly abstract journal of ERIC.

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| Volume II | ---------- | ---- | 026 302 | 13.55 | 1.25 |
| Univ. of Pittsburgh | FS 5.258:58017 | 2.50 | 025 495 | 10.60 | 1.00 |
| Florida State Univ. | ---------- | ---- | --- --- | ----- | ---- |
| Volume I | FS 5.258:58018 | 2.00 | 027 283 | 8.70 | .75 |
| Volume II | Not available | ---- | 030 631 | 7.40 | .75 |
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| | G: | Basic Training Model for ComField Practicum | 026 312 | .45 | .25 |
| | H: | Sample Task Analysis: Behavioral Objectives for ComField Laboratory | 026 313 | .65 | .25 |
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| Univ. of Toledo | FS 5.258:58023 | 7.00 | --- --- | ----- | ---- |
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| Michigan State Univ. | ---------- | ---- | --- --- | ----- | ---- |
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Also available (or to be available soon) are the following related reports: 1. Nine Proposals for Elementary Teacher Education, A Description of Plans To Design Exemplary Training Programs by Nicholas A. Fattu of Indiana University. This document is a summary of the nine originally proposed programs which were funded in phase I of the project for preparing elementary teachers. Available through ERIC: ED 018 677, Price: $6.55 for hard copy; $0.75 for microfiche. 2. Analysis and Evaluation of Plans for Comprehensive Elementary Teacher Education Models by William E. Engbretson of Governors State University. This document is an analysis of the 71 proposed, but unfunded models of phase I. Available through ERIC: ED 027 268, Price: $12.60, hard copy; $1.00, microfiche.

3. A self-initiated critique of the Syracuse University model program, Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers. ED 027 276, Price: $7.20 for hard copy; $0.75 for microfiche. 4. Some Comments on Nine Elementary Teacher Education Models by the System Development Corporation. This paper is adapted from remarks made at an American Educational Research Association conference in November 1968. Available through ERIC: ED 029 813, Price $0.75 for hard copy; $0.25 for microfiche. 5. Twenty-page summaries of the nine reports are available, free of charge, from: Elementary Teacher Education Project, Division of Elementary and Secondary Research, National Center for Educational Research and Development, U.S. Office of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

6. A Bibliography of References Used in the Preparation of Nine Model Teacher Education Programs by James F. Schaefer Jr. (Washington, D.C.: ERIC Clearinghouse on Teacher Education and the Bureau of

Research, U.S. Office of Education, 1969). ED 031 460, Price: $4.95, hard copy; $0.50, microfiche. 7. Analytic Summaries of Specifications for Model Teacher Education Programs, 8. A Short Summary of 10 Model Teacher Education Programs, and 9. Techniques for Developing an Elementary Teacher Education Model are three publications which were issued by the System Development Corporation in July 1969.

It is appropriate to express appreciation to the Clearinghouse staff for its dedication and hard work in completing this manuscript: Dr. Joost Yff, assistant director, and Mrs. Dorothy Mueller, program associate, whose advice and guidance were invaluable; Mrs. Lorraine Poliakoff and Mrs. Suzanne Martin, information analysts, who provided the index to this volume; and to the clerical staff of the Clearinghouse, especially Mrs. Vera Juarez, whose steady assistance made this publication possible. Appreciation also should be expressed to AACTE for its role in the conference and in this Guide, and, of course, to the writers of the guides for their full cooperation both during and after the conference.

The Clearinghouse on Teacher Education is pleased to present this guide to the nine models in the hope that it will stimulate extensive study of ways to improve school personnel preparation and thereby the educational opportunities for America's children and youth.

*Kaliopee Lanzillotti, Publications Coordinator*

*Joel Burdin, Director*

February 1970

## About ERIC

The Educational Resources Information Center (ERIC) forms a nationwide information system established by the U.S. Office of Education, designed to serve and advance American education. Its basic objective is to provide ideas and information on significant current documents (e.g., research reports, articles, theoretical papers, program descriptions, published or unpublished conference papers, newsletters, and curriculum guides or studies) and to publicize the availability of such documents. Central ERIC is the term given to the function of the U.S. Office of Education, which provides policy, coordination, training, funds, and general services to the 19 clearinghouses in the information system. Each clearinghouse focuses its activities on a separate subject-matter area; acquires, evaluates, abstracts, and indexes documents; processes many significant documents into the ERIC system; and publicizes available ideas and information to the education community through its own publications, those of Central ERIC, and other educational media.

### Teacher Education and ERIC

The ERIC Clearinghouse on Teacher Education, established June 20, 1968, is sponsored by three professional groups--the American Association of Colleges for Teacher Education (fiscal agent); the National Commission on Teacher Education and Professional Standards of the National Education Association (NEA); and the Association for Student Teaching, a national affiliate of NEA. It is located at One Dupont Circle, Washington, D.C. 20036.

### Scope of Clearinghouse Activities

Users of this guide are encouraged to send to the ERIC Clearinghouse on Teacher Education documents related to its scope, a statement of which follows:

> *The Clearinghouse is responsible for research reports, curriculum descriptions, theoretical papers, addresses, and other materials relative to the preparation of school personnel (nursery, elementary, secondary, and supporting school personnel); the preparation and development of teacher educators; and the profession of teaching. The scope includes recruitment, selection, lifelong personal and professional development, and teacher placement as well as the profession of teaching. While the major interest of the Clearinghouse is professional preparation and practice in America, it also is interested in international aspects of the field.*

The scope also guides the Clearinghouse's Advisory and Policy Council and staff in decisionmaking relative to the commissioning of monographs, bibliographies, and directories. The scope is a flexible guide in the idea and information needs of those concerned with the pre- and inservice preparation of school personnel and the profession of teaching.

## How To Use This Guide

Each guide has this general outline: overview, program goals and rationale, selection procedures, professional preservice component, relationship of professional component to academic component, inservice component, faculty requirements and staff utilization, evaluation component, program management, and summary. The Teachers College guide, which was not written at the conference, is the only one with a different outline.

In the Government Printing Office (GPO) edition of the models, some of the pages were numbered differently from the original reports which were processed into the ERIC system. For the readers' convenience, the footnotes to the guides include the page references to both the GPO and ED (ERIC) editions. If the page references in the footnotes were the same for both editions, only one set of page numbers is given.

"ED" or order numbers for the models appear along with the prices and other information in the introduction. Ordering information about other references in the ERIC collection would appear in the bibliography to each guide.

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# University of Pittsburgh

## OVERVIEW

The University of Pittsburgh model[1] is a flexible design. Its specifications are general. It is not complete in its present form. Even when implemented, it will need constant refinement and change. However, the following aspects are cited to indicate how this model treats certain characteristics of individualized instruction:

> Individualized instruction should be commonly practiced at the college and university level.
>
> . . .This model proposes a general instructional mode for use at all levels of instruction and in all societal settings.
>
> Individualization should be practiced in a fashion that encourages every learner to be a planner, director, and assessor of his own education.
>
> . . .This model includes a definition of teacher competencies necessary for individualizing instruction with attention to (1) specifying learning goals, (2) assessing pupil achievement, (3) diagnosing learner characteristics, (4) planning long-term and short-term programs with pupils (5) helping pupils with their learning tasks, (6) directing off-task pupil behavior, (7) evaluating the learner, (8) employing teamwork, (9) enhancing self-development, and (10) instigating change.
>
> Individualized instruction is a demanding pursuit which requires the talents and energies of the entire profession. Unilateral action is unthinkable.
>
> . . .This model proposes a new coalition which includes school districts, universities, teacher organizations, the community, and state and federal agencies.
>
> . . .This model proposes that professional staffs work in teams to meet the wide range of needs of learners. New educational roles are assumed.
>
> . . .This model proposes that we learn to be effective team participants in a new coalition.

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[1] Horton C. Southworth, A Model of Teacher Training for the Individualization of Instruction, Final Report (Washington, D.C.: Government Printing Office, 1969), pp. 89-91.

. . .This model proposes a new linkage between pre- and inservice training such that inservice education becomes a part of the daily operation of the school. Staff development would be a priority consideration in each school district in the clinical network.

The model contains module examples of task analysis, mathematics, and science education as illustration of the specificity required of an implementing faculty.[2]

Individualized instruction demands a new partnership between the pupil and teacher to accommodate the human variable in learning.

. . .This model proposes that each teacher trainee initiate a process of self-development as well as professional development. Figure 1 shows the Gestalt or the component relationship for training teachers for individualized instruction.

Individualization is a process demanding continual refinement. One college faculty cannot prescribe for another institution and be faithful to the individualized concept.

. . .This model proposes a systematic feedback system of the training experience so that the process remains relevant to the needs of trainees.

Through decision analysis, each component is assessed and evaluated, not only for its own internal consistency, but for its interdisciplinary relationship and, also, for its relationship to the philosophy of the model itself.

## PROGRAM GOALS AND RATIONALE

### Rationale for Individualizing Instruction[3]

Any new model program must be designed for the kinds of schools that can be expected in the future and for the projected needs of the pupils as they live in the society of that time. Although it is difficult to predict how society might be in 10 or 15 years, the "minimax" process may be used to utilize the minimum amount of effort needed to maximize the chances of fulfilling needs. A minimax model would be one which allows maximum flexibility and which has continual feedback of data from students,

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[2] *Ibid.*, GPO: pp. 105-96; ED: pp. 105-98.

[3] Horton C. Southworth, "Educational Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers," Phase II Pittsburgh Model Feasibility Study, USOE Proposal, March 3, 1969, pp. 11-26. (Mimeo.)

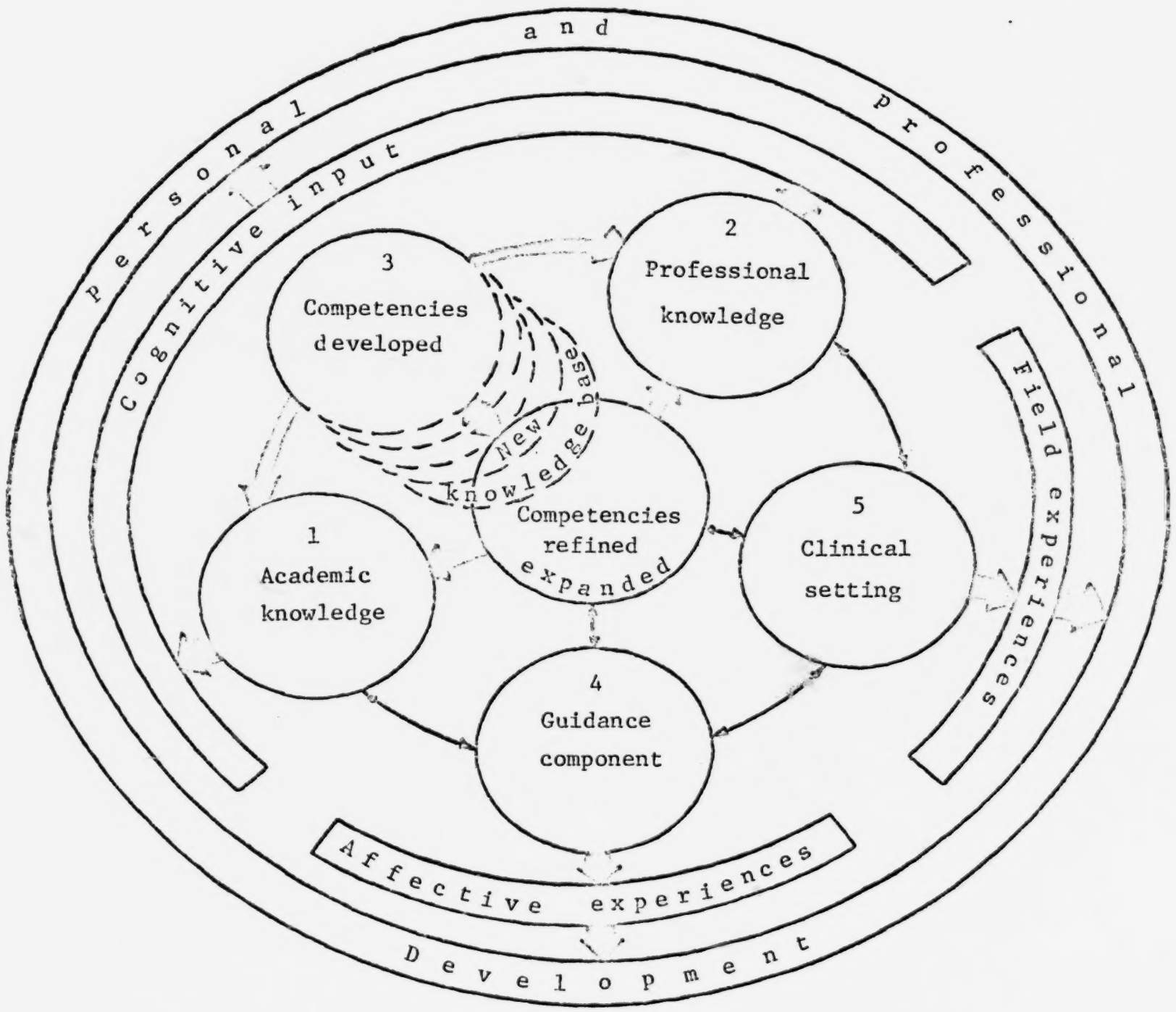


FIGURE 1

GESTALT

faculty, school settings, and community groups to be used in the revision of the program. The individualization of instruction provides this degree of flexibility and ease of revision. The model may be utilized whether schools are in pods, storefronts, home computer outlets, or whatever. Any or all aspects of the model may be revised without causing imbalance in the remainder of the system.

Present signs of alienation, rebellion, and discontent indicate a need to develop a model of education more closely linked with what we know about human nature. Although we may find that human nature has changed somewhat in the future, it seems safe to predict that this change will be less rapid than other changes in society and technology. It seems reasonable that people will be more likely to continue to support a system which treats them as people rather than as objects within the educational system. It seems likely that people would most readily support a program which is planned with them and which expects them to contribute to its revision. In a plan such as the individualized instruction plan proposed by this model, the need for external controls and stimulation will be superseded by reliance on intrinsic motivations and self-discipline.

The University of Pittsburgh design for teacher preparation has been based on three major choices, each of which may require further explication in terms of the assumptions and value stands which support the choices. These three major choices involve:

1. Individualizing instruction.
2. Utilizing the procedure of working with the learner in planning, executing, and evaluating learning experiences.
3. A specified set of goals or minimum expectations and staging requirement for reaching those goals.

The choice to individualize instruction is based on certain assumptions about the nature of the learner, the kind of climate and materials which fosters the most effective learning, and the types of skills, attitudes, and concepts will have lasting importance to the learner and to society.

The assumption is made that individualizing instruction emphasizes the human element in learning and that the individual develops self-awareness, confidence, and self-respect in a situation in which procedures are matched to his unique interests and needs.

Individualization requires more interaction between teacher and learner in terms of human factors; and "thing-oriented" experiences may be mediated through nonhuman sources, such as tapes, readings, etc. Thus, human interaction is a more personal one than in other approaches. The assumption underlying the choice of this approach would be one which assumes that individuals grow more fully when treated by others as humans, rather than as objects. (I-thou relationships.)

The rationale for the selection of the individualized approach has a great deal of support in empirical evidence gained from studies of learning.

An eclectic approach to learning studies reveals certain common findings, despite differences in learning theory. Individuals tend to learn better when they:

1. Actively participate, rather than passively receive the learning experience.
2. Have an opportunity to participate in the selection of what they learn. (This factor may involve motivational aspects in that the opportunity to choose increases the individuals sense of control and worthiness. It may also operate because individuals learn best those things they feel are significant, and they may be more likely to see the significance of the task if they choose it themselves.)
3. Have opportunity for knowledge of results very soon after the response is made (before an incompatible or erroneous response is made or repeated).
4. Experience success. (Success is most likely when the task is matched to the individual's capabilties and need for challenge.)
5. Are expected to succeed.
6. Identify with a competent model.
7. Work on a task suited to their dominant learning mode or style.
8. Work at their own pace or have a choice in the selection of pace.

These factors seem to enhance both learning and retention of what has been learned. These conditions for learning can only be met in a model which provides for individualization of instruction and which involves the learner in the decisionmaking process. It is possible for procedures to be individualized, but for teachers to do all the diagnosing and prescribing (as is the case in several of the phase I proposals). However, that does not capitalize on the motivation which tends to accrue when the individual participates in his choices.

The choice of planning with learner (rather than for) requires a great deal of trust in the learner. It also assumes that people like to work when their goals are significant and that they do not require external control and prodding in order to grow and develop. This plan also assumes that the learner will be (or become) rational and objective in analyzing his strengths and weaknesses and in choosing experiences to develop his potentials.

This model also assumes that previous experiences of learners who enter the program will have an effect on their ability to make rational choices. Thus, the model also is individualized in that those learners who require more support and restrictions on their decisionmaking exercise less responsibility at first. However, as they gain in self-awareness and in their ability to make rational choices, they will take over more and more of the responsibility for their own learning and for assisting other persons in the program. A selection criteria incorporating an assessment of previous learning experiences and evidence of self-awareness as experienced in the guidance component would be use in this model prior to full admission.

The choice of the goals of the program and the methods of achieving the goals are also based on assumptions about which kinds of knowledges and skills will have endurance value in a changing society and in a changing educational arena. The assumption is made that knowledge will continue to grow at an accelerated rate and that much of what we "know" today may be questioned or refuted. A program that can endure in this change must be one which is flexible and open-ended. The program also assumes that the individual who will best utilize change is the one who has a great deal of awareness about himself and the way he learns and has developed skills in planning and evaluation of his own learning.

Individualization of learning, in its purest sense, would imply that there would be as many sets of goals and learning procedures as there are individuals within the program. This model has been designed to individualize learning by providing for rate of learning, a choice of alternative procedures for learning, some differences in procedures to correspond with learning style, and a variety of settings for learning. However, several choices have been made, and limitations have been recognized which begin to put parameters around the individualizing process. Individualization will be limited by:

1. The choice of goals which are specified as minimum criteria for competency as a teacher.
2. Our dearth of adequate data for designing learning programs.
3. A lack of test procedures for accurately measuring some of the characteristics that we consider extremely important in facilitating growth, e.g., attitudes, self-concepts, etc.
4. The difficulty of developing adequate staging environments and logistics for supporting the requirements of the program.

Attempts have been made to prevent unnecessary encroachment by these limitations on the flexibility of the approach. Open-end alternatives are provided in which the learners may add or modify goals or design other learning procedures whenever he can adequately support the value of his new plan. Learners continually feed into the program subjective judgments on attitudes, feelings about their learning, and evaluations of their experiences. Teacher candidates are followed after their graduation and entry into teaching, and these data provide a basis for reformulation of the program. Data generated by the clinical setting as a whole would also be used in reformulating the program.

Phase I of the U.S. Office of Education (USOE) model development emphasized the need to reformulate continually the program on the basis of improvements and advances in research and practice from other sources. Phase II emphasizes, as well, the need for teachers and the clinical setting to study systematically the procedures that are used and to conduct research which will push back the confines imposed by our lack of adequate knowledge and skills. (This aspect was also emphasized in the Ohio and the Florida models.)

Individualization of instruction also provides a procedure which can be adapted to learners from a variety of backgrounds and needs. The im-

plementation of this proposal will be through a network of institutions which will primarily serve the needs of inner-city teachers, but also teachers of learners in suburban or rural poverty settings. The learner may be an elementary pupil, a teacher-candidate, or a faculty member. The competencies chosen for the proposal represent minimum requirements and could also be adjusted to preparing learners to function in a variety of settings.

Individualization of instruction may have far-reaching social implications, as well. Individualization can only occur as we develop adequate criteria for (1) identifying our knowledge base, (2) collecting data about techniques and materials, (3) analyzing and evaluating practices, and (4) systematizing our procedures for extending our body of knowledge. As we gain in skill in specifying objectives and the minimum competencies required for effectively guiding learning, we can begin to communicate with society a posture of professional accountability by which it may more adequately judge the performance of the teachers and schools. This could lead to extensive changes in the schools and better relationships with the community.

## Development and Rationale of Teacher Competencies

Competencies as stated in phase I of the Pittsburgh model are very similar in essence to a number of the objectives specified by the Syracuse, Florida State, Michigan State, and Ohio models. Basic differences between the models are in terms of emphasis and the addition or variation of other competencies. One unique feature of the Pitt model is the emphasis on planning with the learner and helping the learner develop the skills and attitudes for gradually assuming responsibility for his own learning. Several models point out the value of having students work with peers in developing group skills and in assisting peers in mastery of concepts the students have already learned.

The Pitt model has been modified by the addition of a 10th competency, that of accepting responsibilities and serving as a professional leader in instigating change within the educational system. This competency was considered in the original draft of the phase I proposal, but was deleted because it did not seem to be a minimum requirement for a beginning teacher.

It is recognized that the graduates of this program will teach in a variety of settings. In order for the graduate to cope with the disparity between a more traditional school and the clinical setting in which he has had preservice experience, the teacher will need skills of group dynamics and change processes. Unless teachers are taught the skills of being a change agent, the effectiveness of the program will be diluted for we continue to produce teachers who become absorbed by a system incompatible with their skills.

The development of this competency may be completed after a period of inservice work. The plan for the development of this competency may require some control over the initial teaching year either through teacher

placement, through pairing teams of teachers, or through inservice support programs. The designers feel that it is important to prepare teacher candidates for this role. There is a reluctance to omit the competency even though we recognize that the competency may not be realized during the preservice period.

In summary, therefore, the expanded version of the teacher competencies for the model will remain much the same in wording with the addition of one competency. These competencies will be expanded considerably in details using the work of several other models. It should also be stated clearly that this expansion will include specific objectives which treat the teacher's ability to improve the pupil's competency in participating and taking responsibility for his own learning. The modified outline of teacher competencies for phase II will be as follows:

1. Specifying learner goals and/or selecting from learning goals specified by others.
2. Assessing pupil achievement of learning goals.
3. Diagnosing learner characteristics.
4. Planning long- and short-term learning programs with pupils.
5. Guiding pupils in their learning tasks.
6. Directing off-task pupil behavior.
7. Evaluating the learner.
8. Employing team work with colleagues.
9. Enhancing self-development.
10. Serving as a professional leader and change agent in the schools.

Detailed lists of competencies can be found in the Final Report.[4]

## SELECTION PROCEDURES

### Admission into Education[5]

The general criteria for admission into education are the following: (1) The candidate would be invited to present evidence that he is interested in and somewhat successful in helping children and adults, (2) that he has enjoyed success and multiple interests among the academic disciplines, (c)that he has utilized the American language and communication patterns successfully, (d) that he has coped successfully with personal and social problems, (5) that he is self-assured and confident, (6) that he has good physical health, (7) that his total life pattern represents broad interests, (8) that he indicates open and acceptant attitudes plus understanding based on reliable and valid knowledge of all peoples in this society, (9) that he understands the specifications for the teacher training program and agrees to work toward mastery.

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[4]Southworth, A Model, GPO: pp. 14-27; ED: pp. 13-33.

[5]Ibid., GPO: pp. 33-34; ED: pp. 32-33.

The potential of the candidate and the nature of his initial attitudes and commitment will be very important in the admission stages of this model. In spite of much research (some very imaginative), little is validated concerning predictive criteria and their application. However, this model will be committed to the use of the professional judgment of faculty members who, in turn, are committed to the implementation of the model. The nature of individualization assumes much more personal responsibility than previously required or encouraged in a traditional teacher education program.

Improvement of teacher training rests heavily upon specific talents and personal qualities possessed by the student entering teaching as a career. To neglect or overlook talent and personal qualities would serve as an injustice to the students and to the investment in new models for teacher training. Because of the emphasis upon admission criteria, each training institution will need to renew or develop coalitions with teacher organizations, school districts, state agencies, and federal agencies to improve recruitment programs. It will be important to portray to potential teacher candidates that the role and function of the teacher are undergoing major change.

The model's program flexibility will provide for both admission and exit of trainees in several areas along the continuum according to demonstrated mastery of the academic and clinical experiences. The advantage of pre- and posttest capability will eventually provide a controlled entry and exit pattern which does not prevail in current teacher education programs. Figure 2 diagrams this admission and exit procedure.

## PROFESSIONAL PRESERVICE COMPONENT

### Guidance Procedure[6]

The guidance function, as presently practiced, guides the trainee through course requirements, but it does not aid in self-development. In the new model, however, guidance facilitates a more personal involvement. This is shown in the three settings outlined in figure 3. The entire process is aimed toward self-development, both professional and personal.

With this emphasis on the individual, a trainee can expect to be a partner in determining his movement through the college program. No longer will a student be exposed only to the large lecture classroom organization. Peer group interaction, independent study, small seminar group sessions, and simulated modules of instruction will aid him through his college program.

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[6]Ibid., GPO: p. 82; ED: pp. 34-35.

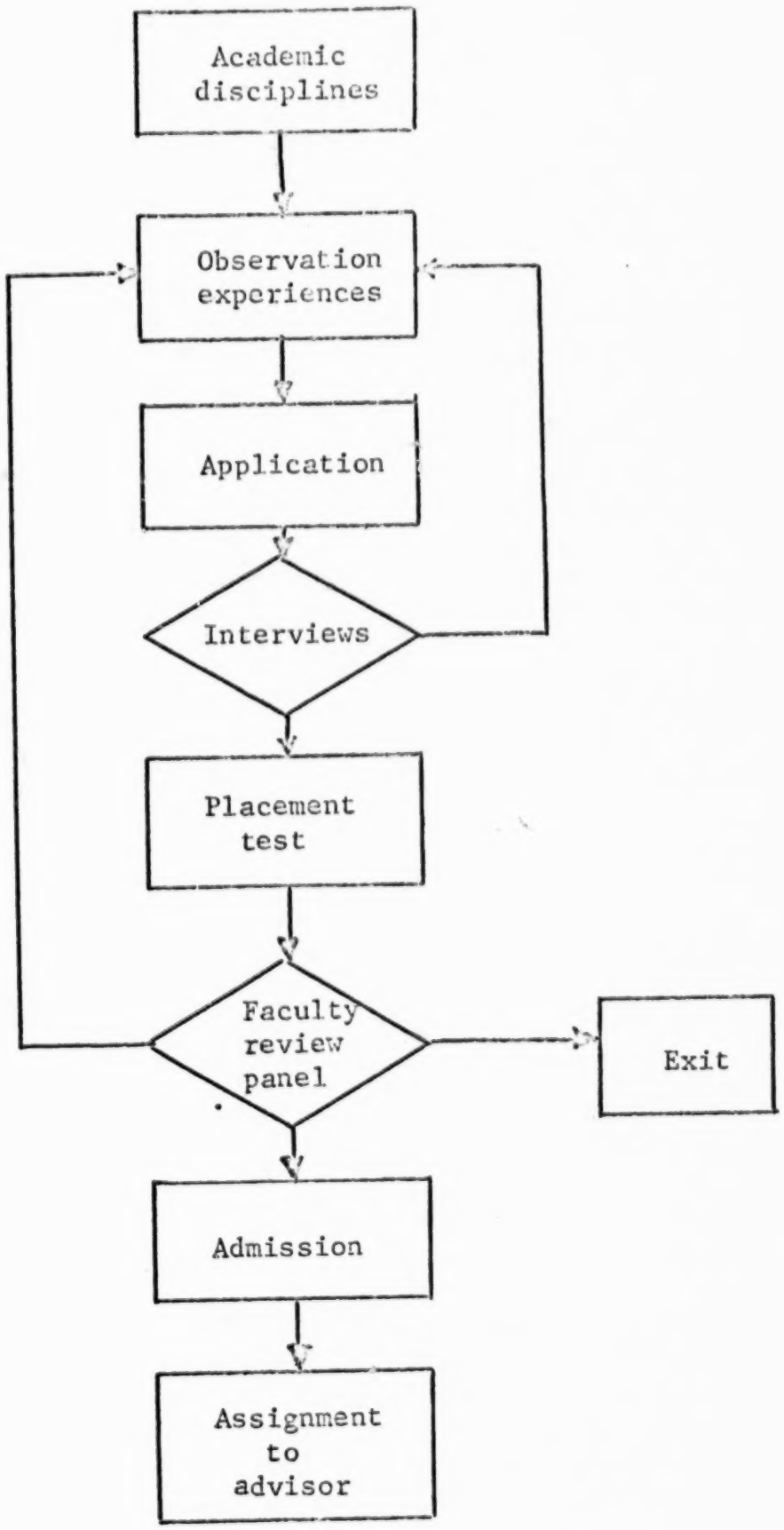


FIGURE 2

ADMISSION AND EXIT PROCEDURES
FOR PROFESSIONAL EDUCATION

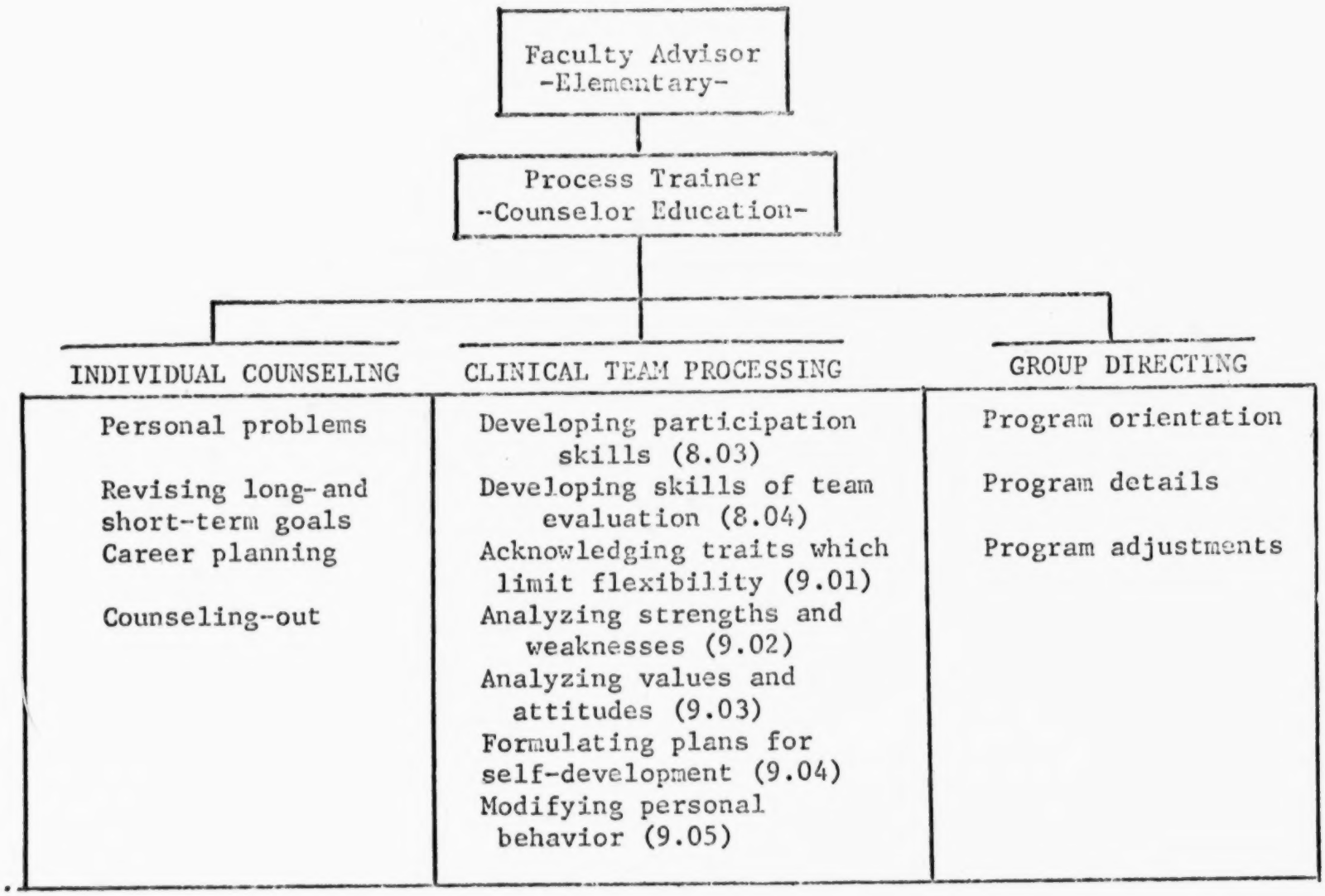


FIGURE 3

GUIDANCE PROCEDURES

Course Selection (Unit Experience)[7]

The trainee will select courses (or learning units) at four different stages according to an ordered subset of learning units desired for fulfilling the requirements for a B.A. degree in education. This subset is selected either on the basis of long-term objectives, short-term objectives in that stage, performance in the previous stage, and factors such as facilities available at school, requirements laid down by the school board, and the individual.

Figure 4 presents the total sequential movement of a teacher trainee through the four sequences of the new model, terminating at the B.A. degree in education at the completion of 32 learning units.

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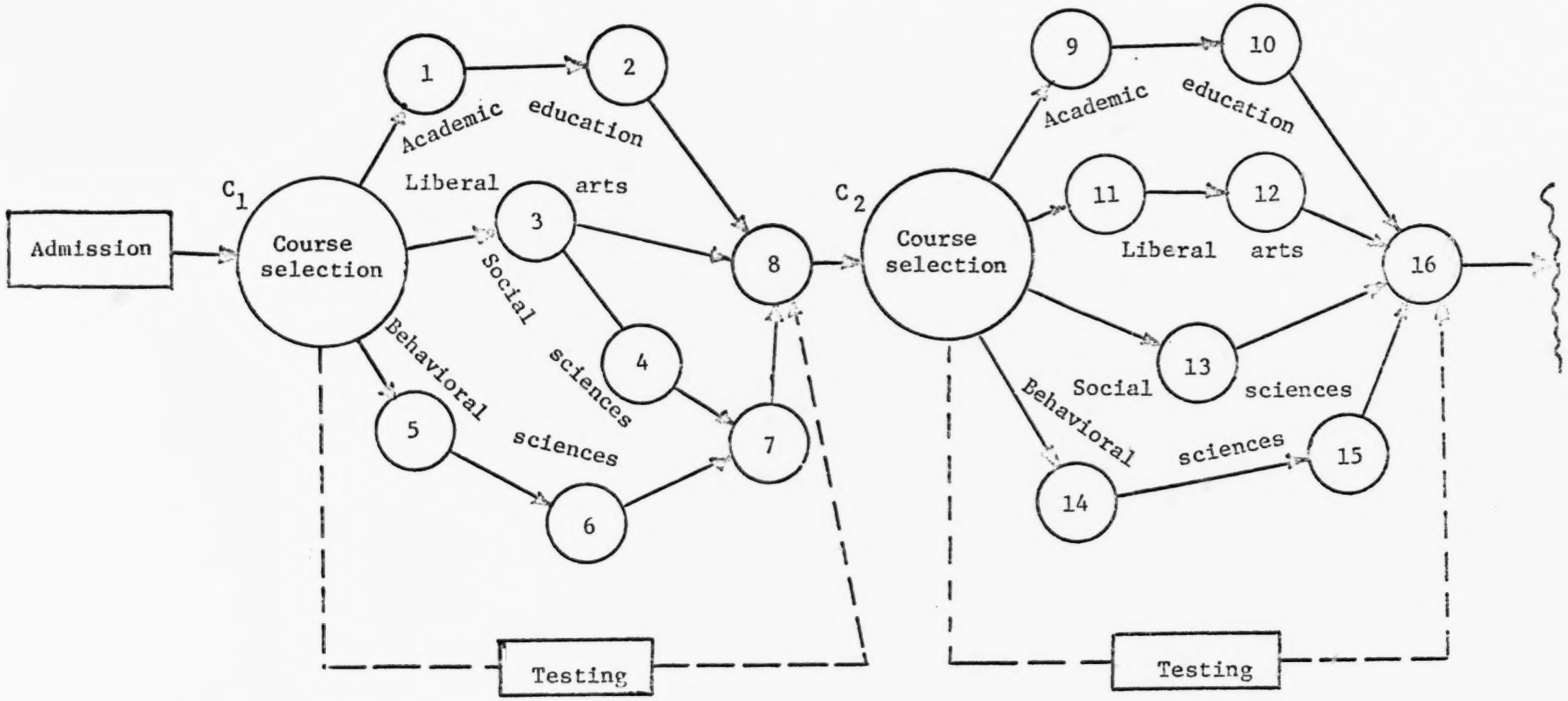
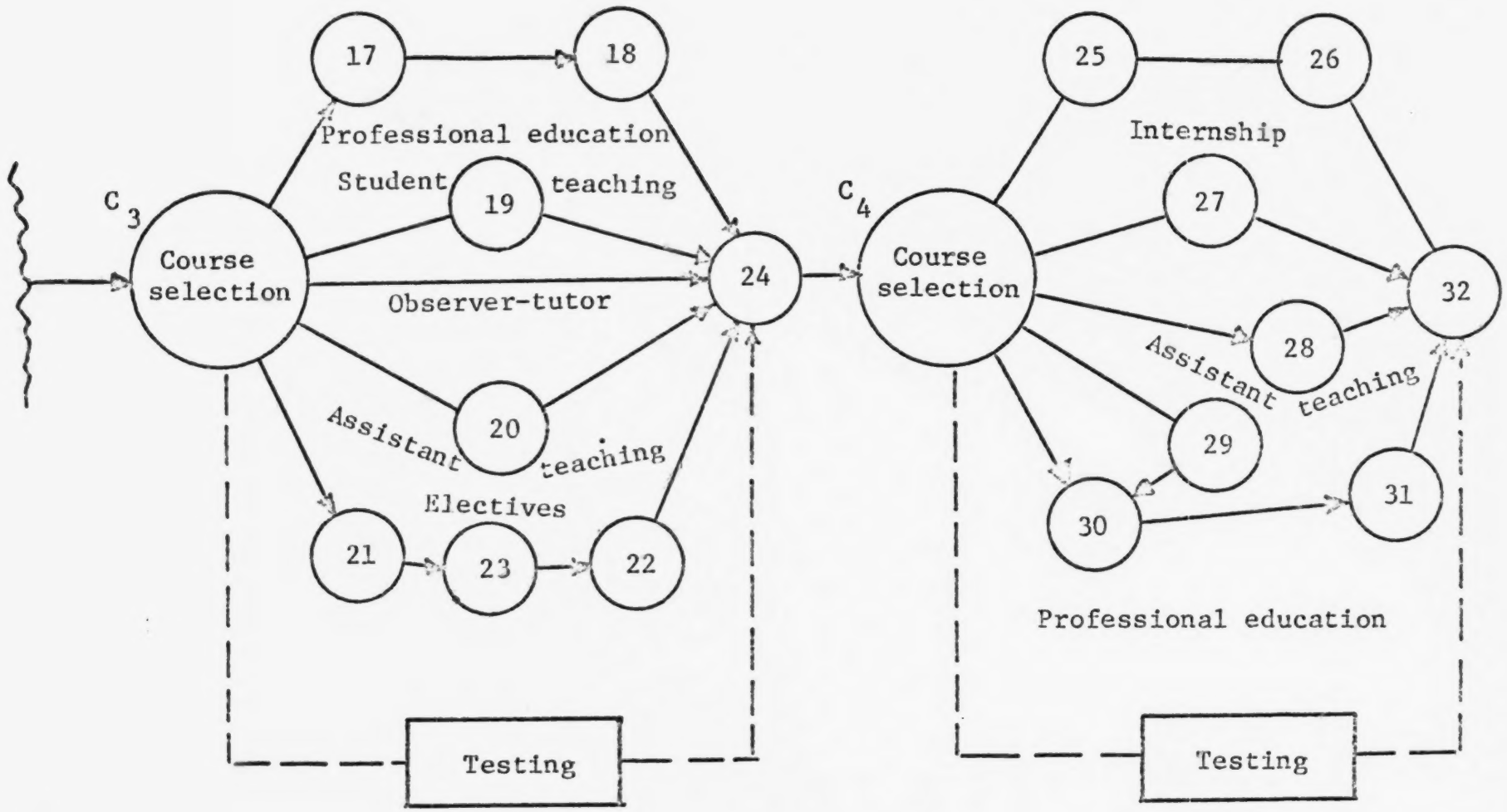
[7]Ibid., GPO: pp. 84-88; ED: pp. 36-38.




$C_1, C_2$: Academic learning sequences--tutorial, courses.
1, 2, through 32: Competency experience units needed for B. A. in education

FIGURE 4

INDIVIDUALIZED INSTRUCTION: TOTAL SEQUENTIAL MOVEMENT OF TRAINEE THROUGH PROGRAM (HYPOTHETICAL PLAN)




$C_3, C_4$: Clinical learning sequences--tutorial, clinical.
1, 2, through 32: Competency experience units needed for B. A. in education

FIGURE 4 (continued)

Following is a breakdown of the model sequence. (Additional explanation may be found in the Final Report.[8]

1. Academic Sequence--First Activities Series. The arrangement of this series offers the teacher trainee a continuous content resource in the liberal arts, behavioral sciences, and social sciences. With his adviser the trainee will select learning units in the academic disciplines as a result of personal assessment and placement tests and/or as a result of needs discovered by content tasks.
2. Clinical Sequence--Second, Third and Fourth Activities Series. During the second sequence, the trainee will be scheduled to observe and participate in the activities of the clinical setting. Data will be collected about his attitude, interrelationships, and successes as a tutor. The behavioral data and faculty judgment will form a part of the new basis for full admission into the training program.

The amount of time devoted to this segment of the program by the trainee is in direct relationship to his interest and faculty assessment. For instance, he could be trained for specific observation skills which would facilitate data collection to advance the base of knowledge about human behavior.

At the end of the trainee's second sequence, he will make application for a student teaching experience. His entry will be based upon appraisals made by his adviser and other faculty members.

During the third sequence, the traineee will serve a dual role. He will be an assistant teacher part of the time and a student teacher part of the time.

As a student teacher, 100 percent of the trainee's time will involve working with pupils for the purpose of developing his level of mastery in the competencies. He will function in a team situation supervised by clinical faculty members.

The trainee, in his role as assistant teacher, will be provided clerical experience, teacher aide experience, and tutoring experience while rendering valuable service to the clinical team.

This type of experience provides continuous contact with pupils in both small and large groups and in all phases of an elementary school program.

During the fourth sequence, pupil contact will continue. Team membership and each individual role or function will be analyzed. At this stage

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[8] Ibid., GPO: pp. 38-39; ED: pp. 37-38.

it is safe to assume some trainees will be exhibiting a great deal of competency mastery suggesting some experience in a leadership role of team or group.

At the internship level of experience, curriculum decisions, communication with parents, and other responsibilities will be added to his accountability pattern. The internship will continue until the specified degrees of mastery are achieved.

Cognitive units in liberal arts and education will continue to be scheduled by the trainee and his adviser until mastery of all required teaching competencies, in this case 32 units of learning.

In figure 4, notice the variable achievement rates between individual activity units. This defines the model's criterial nature of achievement: mastery of a unit of competency instead of the traditional time measurement. The trainee advances as soon as he masters one specified learning unit.

Figure 5 shows the competency-unit experience in detail. Twenty trainees all start toward the same specified learning goal, but they use different learning techniques and arrive at the goal at different times. Individualized instruction can be either independent study or group study.

Summing up the training so far, we have been concerned with adapting procedures for admission, guidance, and course selection for the individual. This implies the theme of the Pittsburgh model--individualized instruction.

Individualized instruction, as defined by our model, must satisfy the following criteria:

1. That trainees are able to proceed toward mastery of the instructional content at varying rates.
2. That each trainee can make regular progress toward mastery of the instructional content.
3. That the units of instruction be determined by the competencies.
4. That trainees are involved in learning which is wholly or partially self-directed and self-selected.
5. That trainees are able to play a major role in evaluating the quality, extent, and rapidity of their progress toward mastery of successive areas in the program.
6. That materials, techniques of instruction, and classroom setting (both university classroom and clinical settings) are available so that instruction can be adapted to the individual needs of the trainee.
7. That trainees are engaged in the learning process through active involvement including (1) involvement in selecting particular units to be studied, (2) involvement with pupils either through a laboratory or clinical setting, and (3) involvement in the learning process through such media as video tapes of their own performance.

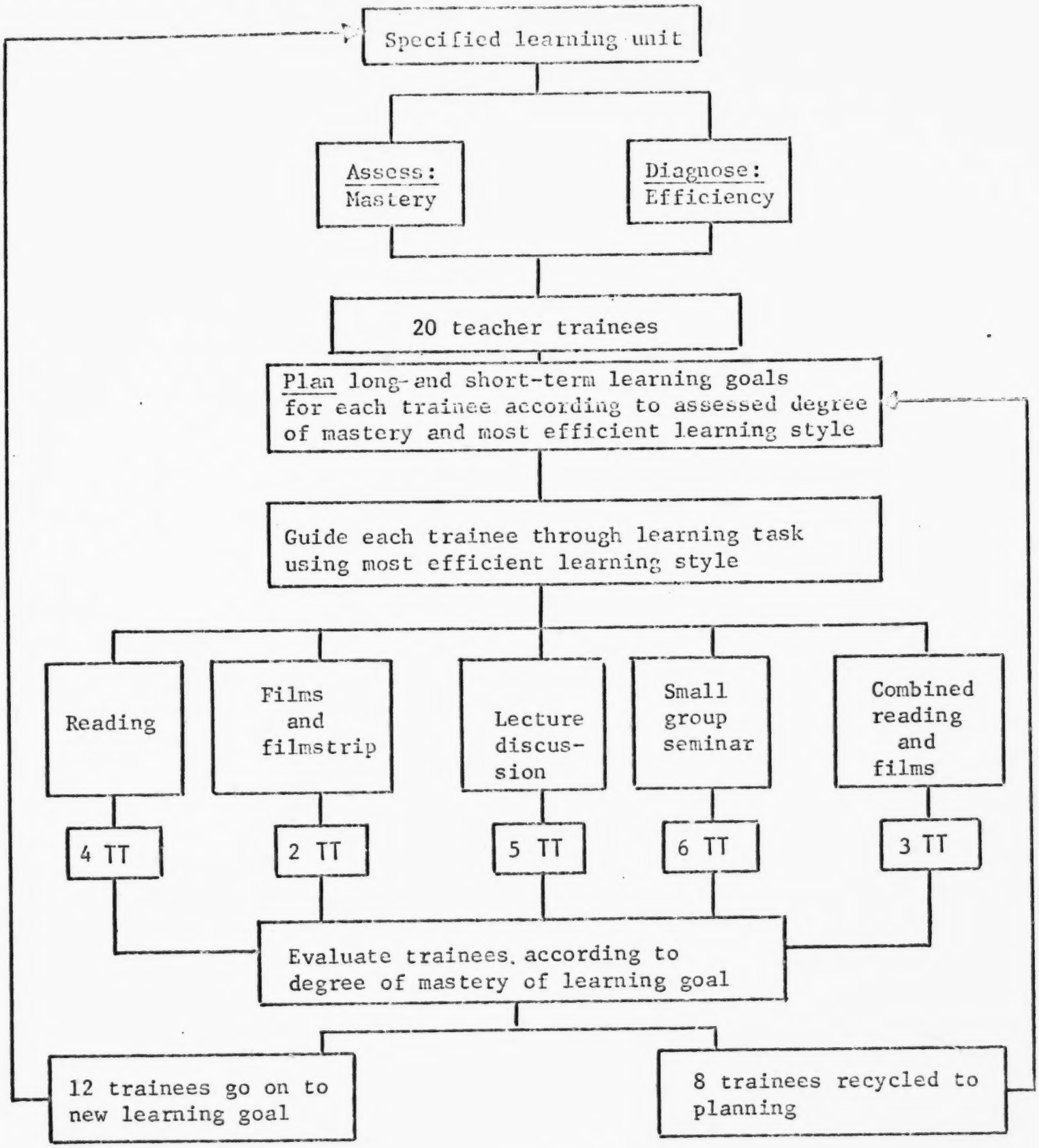
Specified learning unit
Assess: Mastery
Diagnose: Efficiency
20 teacher trainees
Plan long- and short-term learning goals for each trainee according to assessed degree of mastery and most efficient learning style
Guide each trainee through learning task using most efficient learning style
Reading
Films and filmstrip
Lecture discus-sion
Small group seminar
Combined reading and films
4 TT
2 TT
5 TT
6 TT
3 TT
Evaluate trainees according to degree of mastery of learning goal
12 trainees go on to new learning goal
8 trainees recycled to planning

FIGURE 5

INDIVIDUALIZED INSTRUCTION COMPETENCY--UNIT EXPERIENCE[9]

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[9]Ibid., GPO: p. 89; ED: p. 88.

Group study, then, does not violate the individualized concept; in fact, awareness of self can be more easily achieved when studied in relationship to others in similar circumstances, competencies better observed and mastered when working in a group or clinical setting.

## RELATIONSHIP OF PROFESSIONAL COMPONENT TO ACADEMIC COMPONENT

### Self-Development and Flexibility[10]

The Pittsburgh model is an effort to design a program which emphasizes the human element in learning. Through a careful process of induction, interaction, and reflection in the admission and guidance components, the model addresses itself to the humanization of education.

A student can expect to be a partner in determining his movement through the college program. Peer group interaction, independent study, small seminar group sessions, and simulated modules of instruction will supplant large blocks of required courses.

The processes of interaction and reflection will create a greater awareness of a students' strength and weakness. Possessing this awareness and the ability to adjust accordingly will help a student develop confidence and self-respect. As the student becomes involved in determining personal direction, evaluation and assessment will stimulate alternate routes for overcoming mutually determined weaknesses. No longer will the students be shackled to predetermined courses and content outlines generally found in college bulletins. The flexibility of this program will permit course substitution as well as course elimination. The method of acquiring needed competencies will be determined by the learning style of the student.

### Mastery and Efficiency

Mastery and efficiency will be serviced if the following essential aspects are provided for in the program: (1) that trainees are able to proceed toward mastery of the instructional content at varying rates; (2) that each trainee can make regular progress toward mastery of the instructional content; (3) that trainees are engaged in the learning process through active involvement including (1) involvement in selecting particular units to be studied, (2) involvement with pupils either through a laboratory or clinical setting, and (3) involvement in the learning process through such media as video tapes of their own performance; (4) that trainees are involved in learning which is self-directed and self-selected; (5) that trainees are able to play a major role in evaluating the quality, extent, and rapidity of their progress toward mastery of successive areas in the program; (6) that materials, techniques of instruction, and classroom setting (both university classrooms and clinical settings) are avail-

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[10] Ibid., GPO: p. 29; ED: p. 28.

able so that instruction can be adapted to the individual needs of the trainee; and (7) that the units of instruction be determined by the competencies rather than by the more traditional academic divisions such as psychology, sociology, or measurement.

The Pittsburgh model is an attempt to focus on people as well as content, the learner as well as instruction, and the process as well as the product.

The five requirements met by this model component are: (1) academic education, (2) professional education, (3) teacher competencies, (4) a clinical setting, and (5) a guidance component. The model follows a general plan for preparing a person to participate in activities involving human behavior. This general plan for self-development includes cognitive input, affective experience, and field experience sufficient to appraise the trainee's personal and professional development.

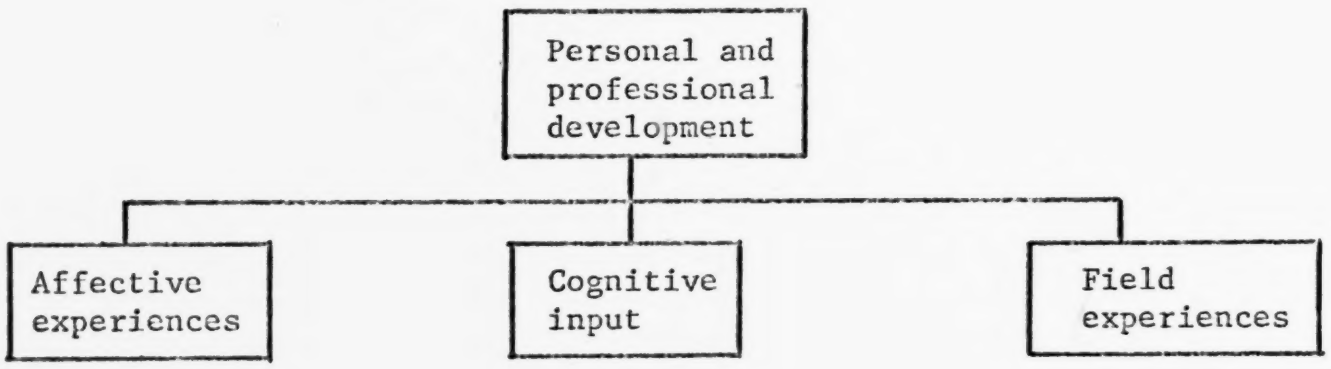


FIGURE 6

GENERAL TRAINING PLAN FOR SELF-DEVELOPMENT

Each component makes a unique contribution to the central theme of individualized instruction; major elements tend to support and enhance each other. As a student receives the input provided by the discipline, the processes treated as academic education are demonstrated. As the student attends the clinical setting, concepts of self-development and teamwork are applied. Figure 7 shows this interdisciplinary relationship of the components and table 1 explains the nature of the contributions of each component to individualization.

## The Liberal Education Required in Teacher Training[11]

The rationale that support the liberal arts component in the training of teachers run through the literature in teacher education. A re-

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[11] Southworth, "Educational Specifications," pp. 16-19.

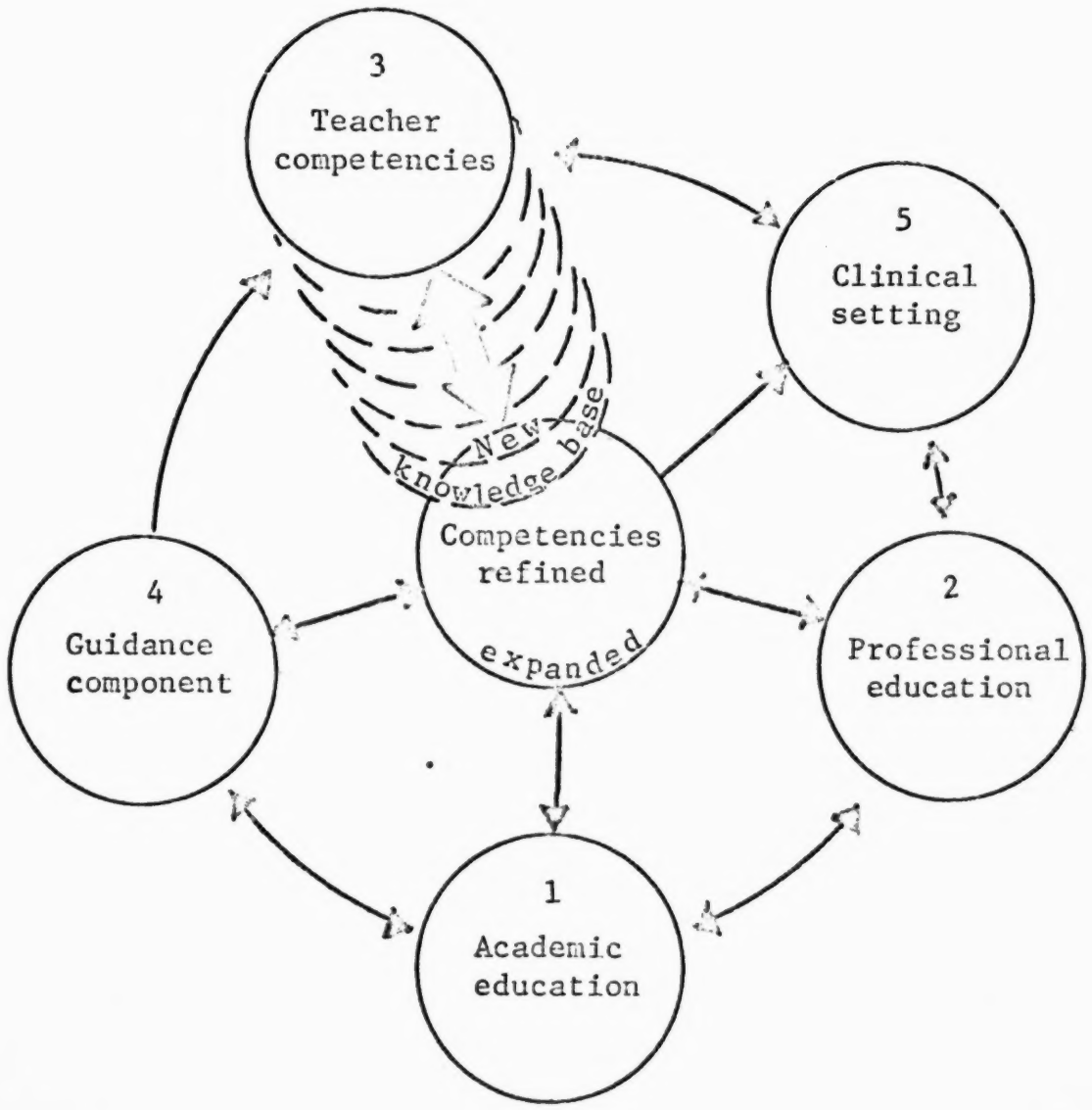


FIGURE 7

THE INTERRELATIONSHIP OF MAJOR COMPONENTS:
EXPANDING THE KNOWLEDGE BASE OF THE MODEL

TABLE I

NATURE OF THE CONTRIBUTIONS OF
EACH COMPONENT TO INDIVIDUALIZATION

| Nature | Component | Definition |
|---|---|---|
| Cognitive input | Academic knowledge | Cultural background<br>Liberal arts<br>Behavioral science<br>School in society |
| Cognitive input | Professional knowledge | Specifying goals<br>Assessing achievement<br>Diagnosing learners<br>Learners<br>Controlling behavior<br>Evaluating learning |
| Affective experience | Guidance | Self-development<br>Team work |
| Field experience | Clinical setting | Application of cognitive<br>Input and affective experiences<br>Refinement of ed. skills<br>Study of the learning process |

view of the USOE model teacher education programs reveals many of the same rationale supporting general education for teacher trainees. These rationale seem to fall together into three general themes: the humanizing influence of liberal education, the conceptualizing opportunities provided by the liberal arts, and the possibilities for learning modes of inquiry and processes of learning in the disciplines through the liberal arts.

A more traditional view of the humanizing influence of the liberal arts sees the student as less than complete until he has had contact with a prescribed set of bodies of knowledge. These experiences are to provide the exposure needed to be broadly educated. Another view of the humanizing influence of the liberal arts sees in the accumulated experiences of mankind a source of ideas which can serve as a medium for the development of a feeling for the humanness of man.[12] The liberal arts have the potential to reveal an "image of man" that provides the necessary schema for seeing the learner in a way that is consistent with the aims and goals of the individualization of instruction.[13] To see the liberal arts as a powerful means for helping the student realize his world in an expanded conceptual framework is to recognize the liberal arts for the important professional training that they are.[14] A long standing preoccupation with the differences between liberal and professional education has failed to provide the perspective needed to see that broad, generalizable concepts can be taught best by those who have acquired them for themselves. Individualizing instruction in the liberal arts should provide maximal conceptual meaning as the learner more closely confronts the medium of subject matter. Individualizing the process of concept formation in the liberal arts should provide a personal and transferable conceptual resource for use by the future teacher.[15]

A major mode for learning is imitation. In their preparation, teachers are taught for years by techniques that are inconsistent with the methods suggested they employ in their teaching. Through contact with the liberal arts, students can acquire the ability to use the modes of inquiry

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[12]Fred Wilhelms, "Humanization via the Curriculum," Humanizing Education, Yearbook (Washington, D.C.: Association for Supervision and Curriculum Development, 1967), pp. 27-28.

[13]James B. MacDonald, "An Image of Man: The Learner Himself," Individualized Instruction, Yearbook (Washington, D.C.: Association for Supervision and Curriculum Development, 1963), p. 29.

[14]Thomas F. Powell, "Reactions to the Liberal Arts Component," in "Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program, Evaluation of the Final Report" (Syracuse, N.Y.: Syracuse University, 1968), p. 57. (Mimeo.)

[15]Michigan State University, Behavioral Science Teacher Education Program (Washington, D.C.: Government Printing Office, 1967), Vol. 1, Section 11, p. 34.

and problemsolving peculiar to the various academic fields. The values fostered by an individualized program of instruction should be more readily internalized when the student utilizes his knowledge of the modes of inquiry. The field of education has recently acquired some theoretical tools for building into its programs this personalization, or internalization, of program values.[16]

The ComField Model Elementary Teacher Education Program prepared by the Northwest Regional Laboratory has devoted considerable attention to the internalization process as it relates to the professional competencies of that program.[17] Through the guidance component of the Pittsburgh model, the same internalization process could be applied to liberal arts education. In effect then, the liberal arts become not only a program for learning inquiry, but also a process through which inquiry can become valued.[18]

Since no teacher can gain command of more than a small fraction of existing knowledge, even in one area of the liberal arts, the required knowledge in the arts and sciences should be of the following types to achieve the purposes of general education stated previously:

> Familiarity with subareas of knowledge covered by the field, and with the general classification schema for ordering knowledge in the field
>
> Command of key concepts in the field.
>
> Knowledge of the history and development of this field.
>
> Knowledge of major modes of inquiry employed in gaining and applying knowledge within the field.
>
> Familiarity with major modes of investigation for gaining access to recorded knowledge of the field.
>
> Knowledge of interdisciplinary relationships.
>
> Knowledge of relevant materials in the field.

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[16] David R. Krathwohl and others, Taxonomy of Educational Objectives, Handbook II: Affective Domain (New York: David McKay Company, 1964), p. 29.

[17] H. Del Schalock, A Competency-Based, Field-Centered, Systems Approach to Elementary Teacher Education (Washington, D.C.: Government Printing Office, 1969), pp. 92, ff.

[18] Southworth, A Model, p. 8.

INSERVICE COMPONENT

## Clinical Settings for Teacher Training[19]

Clinical settings for training are required to link pre- and inservice programs for teachers. The clinical setting cannot be established without a new coalition between colleges, schools, teacher organizations, and state or federal agencies. The relationship between theory and practice can achieve some consistency when teacher training coalitions establish environments for training that truly represent the most explicit behavior models and techniques desired in pushing teaching to new levels of performance. Inservice retraining of teachers must become a professional obligation of the school district, teacher organization, and the related agencies of government. It must be cast in closer proximity to solution of problems in education. A clinical setting must feature service to children, training for teachers, and extension of the knowledge base for teaching. In the case of individualization of instruction, it must provide a curriculum and materials to support this philosophy of organization for learning.

The clinical environment[20] in teacher education serves three distinct functions: (1) a service function to the children or youth being educated, (2) a teaching function for both the students preparing to enter teaching and experienced teachers in residence for retraining, and (3) a research function to serve teacher education and the supporting school districts through directed observations, recorded data about selected human behavior, controlled development of materials, and deliberate evaluation procedures.

Few adequately developed clinical environments presently exist in teacher education. Very few feature a thematic approach whereby a university and school district, with full support from teacher organizations, the community, and federal and state agencies, have established an individualized school setting for teacher training, curriculum refinement, materials development, systematic behavior analysis, and evaluation.

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[19] Ibid., GPO: pp. 40-41; ED: pp. 39-40.

[20] Clinical environment refers to all of the situations, places or settings in which a prospective teacher learns about instruction through teaching children, being taught, simulating teaching, or through carrying out such instruction-related activities with pupils, parents, or colleagues as materials development, materials and method testing, conferring about pupil growth, or curriculum designing. Usually the clinical environment for this model is a school building, encompassing all of its parts and facilities. Additional explanation may be found in Ibid., GPO: pp. 41-47 and pp. 58-60 and ED: pp. 39-40 and 57-59.

The clinical settings need to accommodate all the preservice roles including observer, tutor, assistant teacher, student teacher, and intern teacher. Importantly, the inservice dimension of teacher education will receive greater priority in more visible and carefully established environments. Experienced teachers will be assigned in residence for varying periods of time in order to facilitate their training to new tasks or differentiated roles. University graduate credit or competency experiences would be designed for the clinical setting. A cooperating school district and the representative teacher organizations will need to agree upon personnel policies which will permit the reassignment of faculty for training purposes. Whenever possible, retraining of teachers will be done in teams. Team training implies experiences which would adequately prepare personnel to function effectively together in differentiated roles.

Tutors, observers, student teachers, and assistant teachers will be involved in the clinical settings for varying periods dependent upon individual progress. Each role should contribute to a professional team serving children. Consistent models of exemplary behavior, technique, materials, and evaluation would form the clinical curriculum. The opportunities to practice would be available throughout an undergraduate program. Student teachers will participate as team members with different team members monitoring their performance. Teaching interns could be utilized in settings outside the clinical buildings only as part of a carefully designed and balanced program. The traditional (1:1) student teacher-cooperating teacher model lacks relevance in an era of the differentiated staff. New teacher candidates will be exposed to many models of teacher-learner behavior. The assorted roles of tutor, observer, assistant, student, and intern provide more potential for versatility and mastery than in traditional training settings.

A clinical teaching staff will be cooperatively selected by the school district and university partners in the teacher education coalition. The resident staff will be of permanent composition blended with teachers there for brief tours of assistant teaching as they complete short-course retraining. Assignment to the resident staff will be recognized monetarily and designated by teacher education as of prime importance. Tours of three or more years in the clinical setting will ensure continuity of program. Whole faculties could be retrained by selective residence within the clinical environment over a period of time. The relevancy of training will be carefully designed, controlled, and measured in such settings.

The clinical environment of identification represents a major decision in the implementation of this model.

The nature of the school district, university, teacher organization, community, and state-federal coalition is based on certain specific factors. Since an effective clinical setting is so important, arrangements must include the following points:

1. Demonstration of the philosophic and operational compatibility among the coalition members.

2. Agreement between the parties such that the roles are clearly identified in conjunction with the responsibilities.
3. Evidence from the school district regarding its support of efforts in teacher education, including budgetary commitments, program developments, and proposed plans.
4. Indication that the teaching faculty has appraised its attitude toward the development of a clinical setting.
5. Delineation of the manner in which the community has been informed regarding the concept of a clinical setting in education.
6. Periodic assessment of the operation to include university personnel, school district administrators, teachers, students, and parents.
7. Development of communication techniques in order to facilitate a free-flow of information regarding the operation of the program.

## FACULTY REQUIREMENTS AND STAFF UTILIZATION

### Faculty Instructional Modes[21]

A major revision of instructional patterns throughout education has been overdue. It seems likely that the proposed model will facilitate developing more effective teaching methods in higher education. In the past, individualization was treated by most teacher educators at the knowledge or cognitive level. Many years of discussion about the concept resulted in few acceptable models. However, the proposed plan for individualization at the teacher education level is founded on strategies directed toward student internalization--the major process of the affective domain.[22] As internalization develops, the student attends to phenomena, responds to them, values them, and conceptualizes them. In this manner, he becomes an advocate of individualization. Thus, while individualization requires certain teacher knowledge with regard to specifying, appraising, and planning, the operation and implementation of these competencies also relies heavily on the process of internalization by students. In brief, the student must first experience his own learning in an individualized pattern before he can practice the art. Therefore, the faculty in higher education cannot continue using teaching techniques which are inconsistent with the principles of individualization if the operation and implementation of this concept is its real concern.

The proposed instructional mode for university faculty includes six process as described in the following and shown in figure 8:

1. Specifying learning goals. The higher education faculty must specify learning outcomes in terms of manageable and observable behavior to--

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[21] Ibid., GPO: pp. 47-49; ED: pp. 46-48.

[22] Krathwohl, op. cit., p. 44.

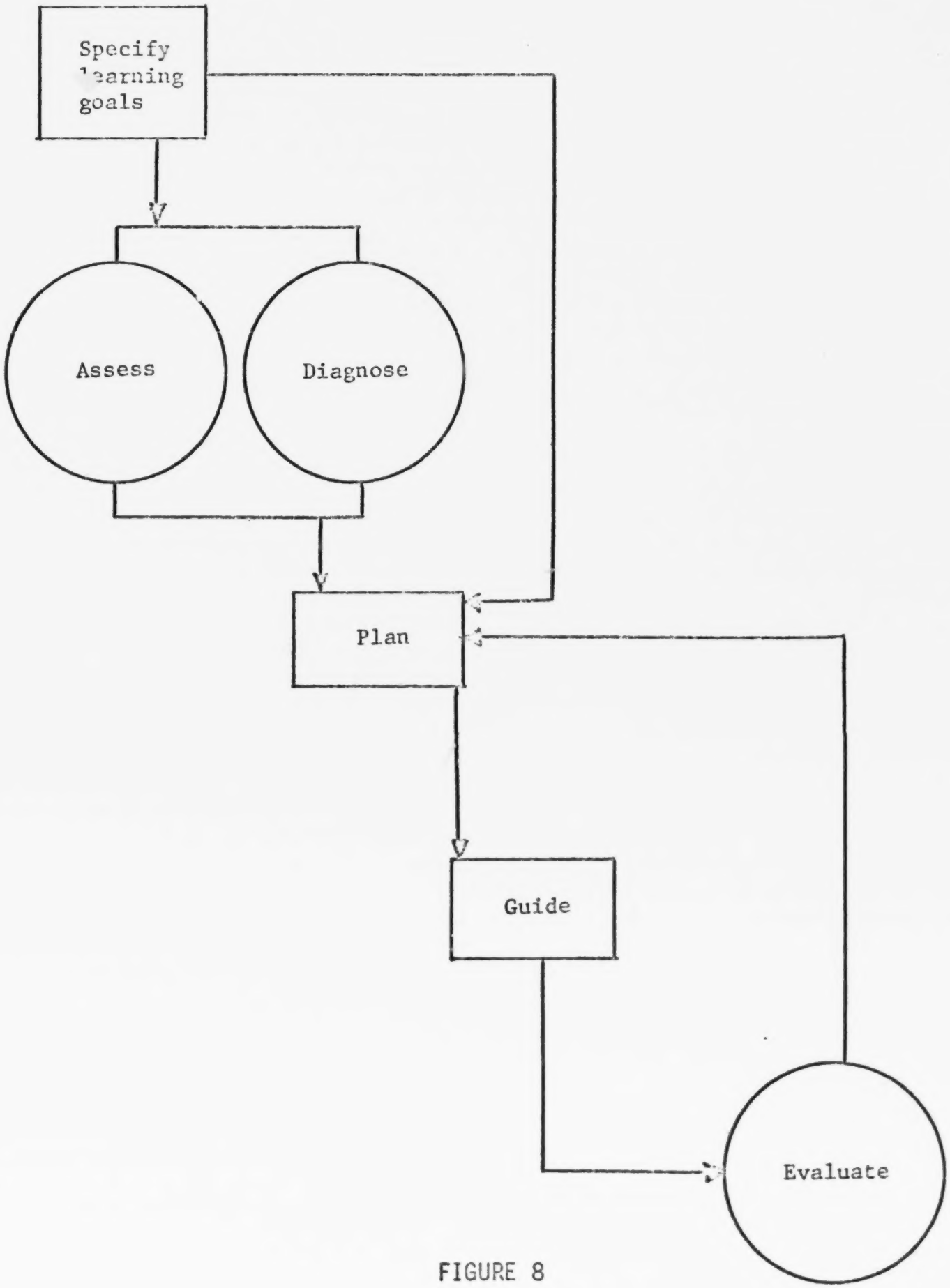


FIGURE 8

FACULTY-TRAINEE INSTRUCTIONAL MODE

2. Assess student achievement of learning goals, which suggests and indicates various degrees of sophistication regarding the learning outcomes.
3. Diagnosing learner characteristics is necessary for creating the most efficient means of mastering the learner outcomes, and--
4. Planning long-and short-term learning programs with students. Planning is done cooperatively with the student, utilizing data from numbers two (2) and three(3).
5. Guiding students with their learning tasks implies aiding the student in his endeavor to achieve mastery of the learning outcomes. Help can fall into many categories--material location, problem identifications, problem clarification, direction, etc.
6. Evaluating the learner is done, naturally, in terms of the specific learning outcomes previously identified. The results of the evaluation then determines the new learning outcomes.

Developing the Professional Knowledge Base for Teaching[23]

If education is to become a science as well as an art, then educators at all levels must identify new modes of clinical decisionmaking or regularize old ones. In 1969 American education still finds too many beginning teachers having to rediscover simple truths, to refute a few myths, and remediate the stand-up, talk-at teacher model which dominates most of the society. The "profession"[24] has not evidenced those signs of maturity which include consiste t efforts to (1) identify its knowledge base,(2) collect data about its techniques and materials,(3) analyze and evaluate its practices, and(4) systematize its procedures for extending a body of principles, strategies, and understandings of itself.

In the search for a conceptual framework and for modes of inquiry for extending the knowledge base, the student will have been provided contact with the liberal arts and those academic fields, including the behavioral sciences, which provide the cognitive base for the teaching profession. The clinical setting provides the context in which the cognitive base can be applied to the problems and issues arising from instructional decisionmaking. To study and receive feedback about instructional decisions, the practitioner[25] must have a supportive clinical team[26] consisting of educators, academicians, and instructional assistants to allow reflection on the decisionmaking process.

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[23]Southworth, "Educational Specifications," pp. 20-27.

[24]Professional and profession are enclosed in quotes throughout to indicate a state of becomingness.

[25]Practitioner in this sense refers to the classroom teacher or the teacher education student in the clinical setting, either of which may be extending their own or the professions's knowledge base.

[26]For a further definition of the term "clinical team," refer to Southworth, A Model, p. 100.

As the practitioner selects "concepts, intellectual processes, and the emotional ingredients[27] which reflect an instructional decision, "an opportunity is provided for the analysis of behavior which will expand the knowledge base of the teacher. As the educator-researcher-teacher-academician team oversee this process, new testable theory will be generated by the decision-treatment-evaluation cycle.[28] (See figure 9.) The clinical data generated through this cycle are artifacts in the system, not a product in any sense. In effect, it instigates and perpetuates the examination of professional decisionmaking as a rational process. The procedure establishes the hypothetical nature of professional methodology and involves the practitioner in its evaluation and refinement.

As the practitioner gives evidence of being able to cope with the decisionmaking process, these successful experiences will provide feedback for beginning the process again. When the practitioner is unable to cope with the process, it will be necessary to return to the knowledge base for additional cognitive input or to a guidance function which will provide the necessary insights to return to the instructional issue or problem that is unsolved. Translated into action, this means a continuous process of retraining of teachers.

Restructuring the liberal arts component[29] should proceed early in the model implementation. The array of strategies which could be employed in the restructuring process are unlimited. The authors of this model place emphasis upon a design that utilizes the criteria which follow: (1) that both the school of education and the academic department involved in the restructuring recognize the need for program regeneration, (2) that individualization must be understood and agreed to as the theme permeating the new organization, (3) that sufficient budget, personnel, and time be assigned to the restructuring process in order to facilitate the development of instructional units and instructional modes needed for this model, (4) that means of evaluation and feedback be established to ensure continued relevancy of the program, (5) that the relationship of each academic discipline to the total program be recognized early in their individual program, and (6) that the restructuring process be examined continuously in order to judge it as a way of establishing the grand design for restructuring the institution.

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[27]Elmer R. Smith, "The Learning Essentials," Teacher Education (New York: Harper and Row, 1962), p. 68.

[28]Michigan State University, op. cit., p. 8, ff., provides a model of this cycle and its contribution to the practitioner's and profession's knowledge base.

[29]Southworth, "Educational Specifications," p. 19.

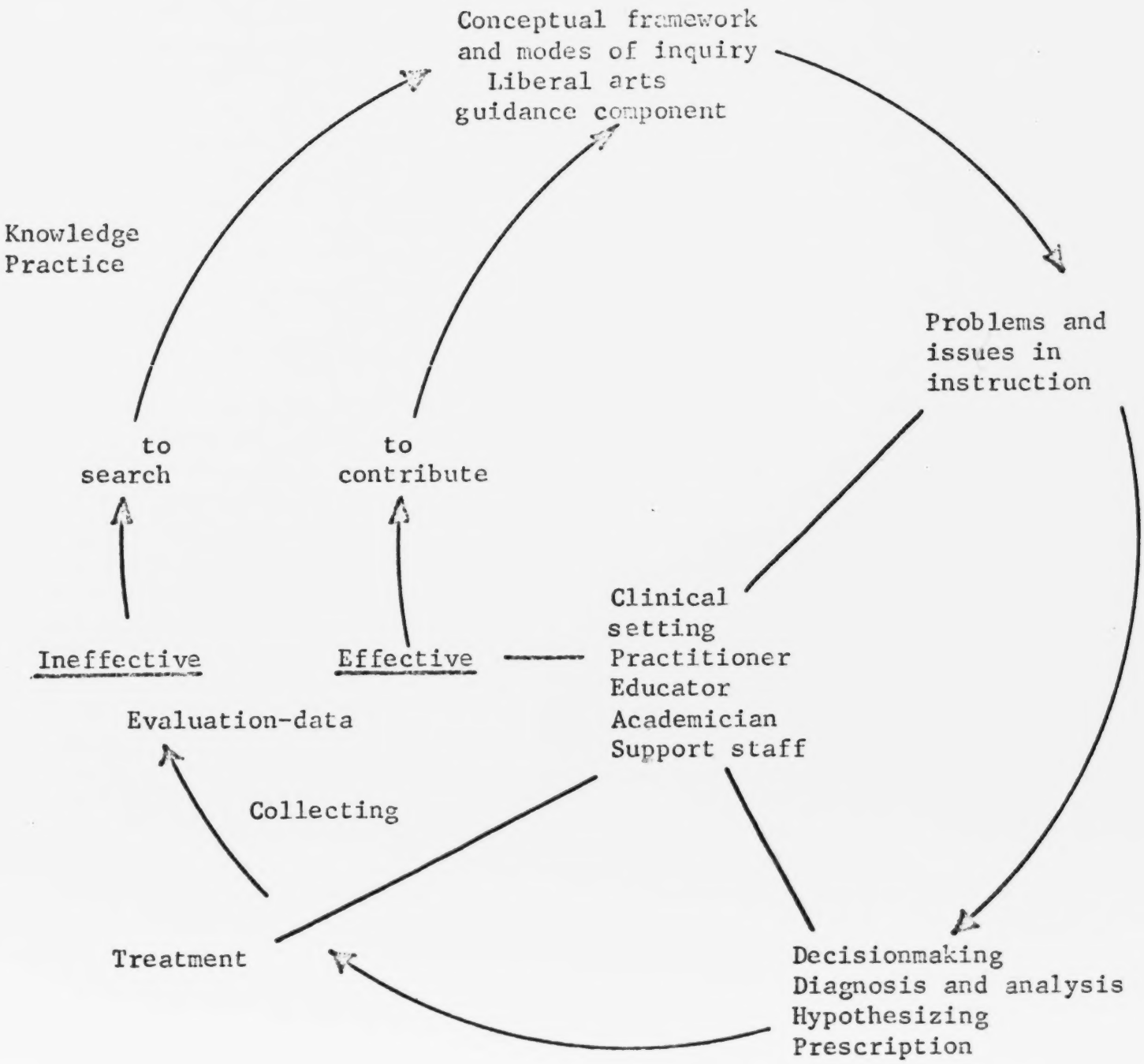


FIGURE 9

EXTENDING THE KNOWLEDGE BASE FOR TEACHING[30]

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[30]Michigan State University, op.cit., Vol. 1, Section 2, p. 34.

EVALUATION COMPONENT

Evaluation Questions for the Teacher Training Model[31]

The teacher education program which has been outlined in the Pittsburgh model shall be evaluated for two purposes: (1) to provide information for guiding and improving the program as it develops and (2) to provide a comprehensive assessment of the program. These two aspects of evaluation are formative and summative evaluation after Scriven's explication in "Methodology of Evaluation."[32]

Both formative and summative evaluation require that each dimension of the individualized teacher education project be assessed. These dimensions consist of (1) the aims or criteria of the program, (2) the plan or procedures for the program, (3) the implementation or operation of the program, and (4) the end results of the program, i.e., the degree to which the program permits the achievement of the objectives.

The evaluation of the Pittsburgh model will provide data to answer the following types of questions relating to an individualized teacher training program:

1. Are all the competencies needed in teaching clearly stated in terms of the desired outcomes?
2. Does the list of competencies exhaust all the needed competencies for the teacher of the future?
3. Are there provisions for the manner in which the students shall work to develop these competencies: the materials used, the degree of proficiency required for various competencies, the application of knowledge, the determination of prerequisite skills needed for certain competencies, the ordering of competencies, and the arrangement of the competencies into units of workable size?
4. How does the plan incorporate the elements of individualization into the teacher training program so that teachers will be trained in the same manner that they will eventually instruct children? In what manner will the trainee diagnosis take place? What type of testing procedures will be used for this? What provisions will be made for the use of diagnostic testing procedures in assigning units of work to the trainees? Is every unit planned with alternate

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[31]Southworth, A Model, GPO: pp. 65-69; ED: pp. 64-68.

[32]Michael Scriven, "The Methodology of Evaluation," Perspectives of Curriculum Evaluation, Edited by R. E. Stake (Chicago: Rand McNally and Co., 1967).

instructional paths, materials, and technology? What provisions are made for the continuous monitoring and assessment of student progress?

5. What forms of environments are accessible to the trainees for individualizing instruction?
6. Is the plan developed in sufficent detail so that it can be implemented?
7. Is the plan appropriate to the characteristics (age, previous instruction, etc. ) of the trainees?
8. Does the plan account for the variation of events which might require modification of the plan?
9. Does the theoretical study of professional education and the academic disciplines blend with application of learning throughout the entire training program?

Implementation

The way in which the program actually operates must be assessed in terms of the viability and efficiency with which the plan is followed and the criteria are met. In asking whether the operation of the plan fits the plan and stated criteria, the following types of questions need to be answered in order to establish the strong points of the program and modify the limitations of the program as it operates:

1. Are the behavioral objectives for competencies stated unambiguously so that professor, trainees, test writers, or curriculum developers can use them with clarity?
2. Is there empirical evidence that the objectives are in requisite order?
3. Is there empirical evidence that the objectives are grouped into units of appropriate size?
4. Are the objectives and units such that there are no gaps? or overlapping steps in the ordering of the objectives and units?
5. Is there evidence of the validity and reliability of the various diagnostic tests used in the program? This includes both written tests and various performance tests during clinical experiences.
6. How do the procedures for administering tests and scoring procedures operate?
7. Is there evidence that the tests provide information that the trainee can use to monitor his own progress?
8. Is there evidence that the materials used are appropriate and easily accessible to the trainee?
9. To what degree does individualization take place during the program? Are there alternate routes or types of instructional materials, or arrangements by which the trainee can proceed at variable rates?
10. What type of staff training is required to operationalize the program?

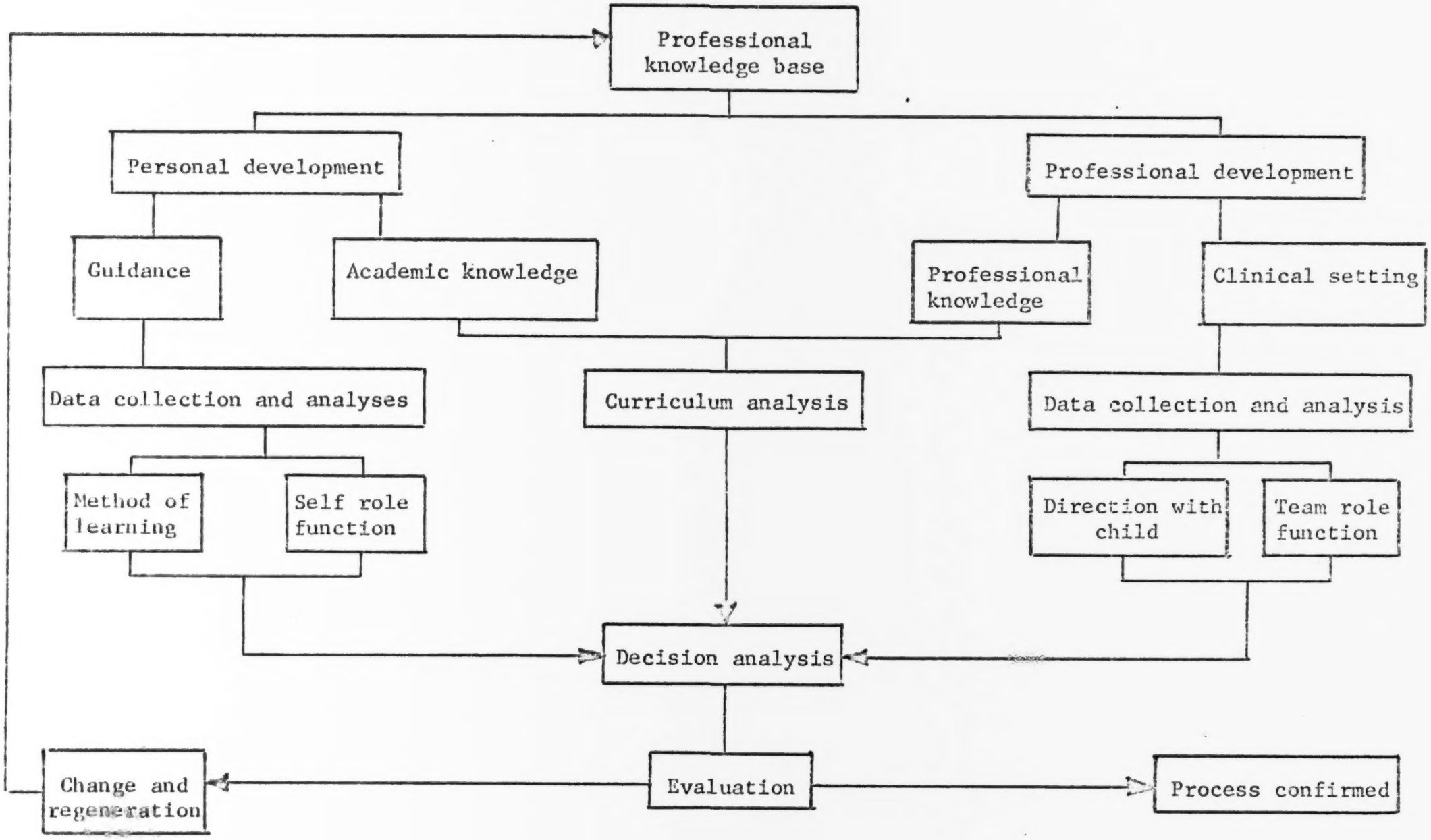


FIGURE 10

PROGRAM REGENERATION SYSTEM

Assessment

Finally, the outcomes of the program in terms of trainee performance will be evaluated to judge the extent to which the teacher training program does prepare trainees to effect various competencies required. This will require data to show:

1. Measures of the trainees' performance in the classroom in the differentiated teacher roles that they may be expected to undertake.
2. Measures of the effectiveness of various diagnostic procedures and materials for improving student performance.
3. Data to show variation in instructional materials and routes.
4. Data to show variation in instructional rates.
5. Followup studies on the work of trainees in teaching once they have completed the program.

The types of questions listed for the planning, operation, and assessment of the teacher training program can be answered at various points in time during the program's development in order to improve the program's operation.

The information also can be combined with all information available regarding the project for summative evaluation. However, the data will be gathered by continual monitoring and assessment at all phases of the program development in order to correct problem areas and to provide a record of program progress and change. Figure 10 shows this continual monitoring process operating within the new model.

Through decision analysis, each component is assessed and evaluated, not only for its own internal consistency, but for its interdisciplinary relationship to the philosophy of the model itself.

PROGRAM MANAGEMENT

Educational reform of the recent past has been analyzed from at least two points of view--as products or as processes. The proposed products of this model will probably be examined in depth. However, the authors believe that the procedures by which this model is implemented, i.e., the process of change, also should be studied.

Much advice is presently available from those who have encountered problems in change. In the text, Innovation in Education,[33] Matthew Miles makes the following observation:

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[33]Matthew B. Miles, editor, Innovation in Education (New York: Teachers College Press, Teachers College, Columbia University, 1964), p. 635.

"...Educational innovations are almost never installed on their merits. Characteristics of the local system, of the innovating person or group, and of other relevant groups often outweigh the impact of what the innovation is."

If one abides by this judgment, the Pittsburgh model or any other design is not likely to be effectively introduced without a substantial analysis of the present state of affairs. Examination of such functions are as the communication patterns in a system, and the decisionmaking process should precede the enactment of elaborate plans of action.

The implementor will establish the structure for all teacher training components and coordinate the resulting relationships. A system of management will evolve as the faculty pilot parts of components and establish evaluation procedures.

Management[34] is identified and defined as a set of functions that is the necessary support system of the teacher training program. The designers list the following functions:

1. Planning and development.
2. Financing.
3. Operations maintenance.
4. Information.
5. Communication.
6. Evaluation.
7. Reformulation of program.

The functions of management utilize human energy, time, material, facilities, and data resources in attempting to achieve the component objectives which have been clarified in this proposal.

The administration of an individualized teacher training program, one only reaching 40 percent of total individualization, will demand new strategies from department chairmen and college faculty. Certainly, the monopoly of superior management systems in government, industry, and the defense establishment will continue until teacher education personnel begin the interface with the so-called experts.

Any implemention of this model will need research support in the careful specification of learning goals, task analysis, and systematic evaluation of the model components. The relationship will not be an easy one between the research-oriented faculty and the operationally oriented faculty. It would be safe to state at least three major problems encumber the dialogue: (1) a common language does not exist, (2) respect between research and teacher education has not developed, and (3) approaches to

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[34]Southworth, "Educational Specifications," p. 35.

thought, process, and problemsolving are not initially compatible or congruent.

When a university decides to implement the University of Pittsburgh model, a series of events must occur. Table 2 illustrates this process in 10 steps.[35]

## SUMMARY[36]

Individualized instruction has been an ageless dream of the schools of America. The years of effort and dialogue have resulted in very few plans and operations of this idea which could withstand rigorous examination. Through the years, this dream has turned into a dilemma as teachers have been urged by many to individualize programs only to be confronted with the reality of a training lag, an economic restriction, and an operational void which exists because so few acceptable models of this concept are available.

The central theme of the new model for teacher training is individualized instruction. A general definition of individualization is as follows: Individualized instruction consists of planning and conducting, with each pupil, programs of study and day-to-day lessons that are tailormade to suit his learning requirements and his characteristics as a learner. This definition focuses on instructional planning with and for each individual student before teaching him, then teaching him according to the plan. Most educators mistakenly define individualization in terms of the setting within which learning takes place, limiting it to tutorial instruction or independent study.

Group teaching can also be a part of individualized programs. Whenever, at the same time, two or more pupils are ready to study the same task in a like way through group presentation or discussion, it is proper for the teacher to assemble and teach them as a group. This is very different from most instruction today where plans are made for the group as a whole and where instuction pays limited attention to individual differences among pupils in the group. It has been assumed by the authors of this proposal that principles of individualized instruction should be used throughout the educational experience. Thus, while this model is specifically addressed to the preparation of teachers for levels of instruction within an elementary school, it is applicable to other levels.

Several chronic problems of education are directly related to the issues

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[35]Southworth, A Model, GPO: pp. 63-65; ED: pp. 62-64.

[36]Ibid., GPO: pp. 70-72; ED: pp. 69-71.

TABLE 2

STEPS TO IMPLEMENTATION
OF THE UNIVERSITY OF PITTSBURGH MODEL

| | | |
|---|---|---|
| 1. | Selection of model | The institution has decided to implement the University of Pittsburgh model. |
| 2. | Faculty, students, and facilities assessed | Capabilities of faculty, students, and facilities are assessed with regard to the model requirements. |
| 3. | Resource capabilities | Conclusion is reached regarding capabilities of all resources. |
| 4. | Goals of overall program | Long-term goals are specified such that these goals are consistent with resource capabilities. |
| 5. | Immediate or intermediate objectives | Short-term goals are specifically identified with regard to facilities, material and techniques, management, and faculty. |
| 6. | Acquire new resources | Short-term goals are realized as new resources are acquired. |
| 7. | Orientation of faculty, conventional and new courses, and clinical settings | The system has the capability to induct students after faculty orientation has occurred, courses have been evaluated and reformed, and clinical settings have been identified. |
| 8. | Recruitment | Students are urged to apply for admission. |
| 9. | Assessment of resource and student capability | Resources such as faculty, facility, and material are available. Student capabilities are also assessed. |
| 10. | Admission | Students are admitted on the basis of system and student capability. |

of individualized instruction and teacher preparation. Paramount among these concerns is inservice education. Slowly, we are coming to acknowledge the obsolescence in our skills to individualize instruction. The programs of the past have been futile. In the future, we will find a new approach as training, self-development, and self-renewal become features of the daily operation of the school. This model proposes a way of preparing new professionals and upgrading the licensed practitioners to individualize instruction.

Individualized instruction is the central theme of the University of Pittsburgh model. In preparing the plan, we intended to be clear that while such individualized programs as IPI, PEP, and PLAN have been cited in the text, the Pittsburgh model is not a teacher training program only for that form of individualization.

In a general sense, the proposed program is quite similar to many existing plans. The student will continue in liberal arts study for the first part of his preparation. The remainder of his program will consist of several experiences in a school setting.

Major differences exist between conventional teacher education programs and the proposed model. An illustration of this point would be the matter of program flexibility--a critically important trait of individualized instruction. In the Pittsburgh model, this attribute will be evident as a student obtains the liberal arts input because instructional modes will be used which allow for different rates and styles of learning. Flexibility also will be obvious as students assume more responsibility for making decisions about their training. Flexibility will be noted in program planning. No longer will courses be offered with vague descriptions regarding purpose and goals. Smaller, more precise units of instruction will be used, and students will have a greater opportunity to tailor the program according to their needs. This trait also will be visible during student teaching and interning for these experiences also will be adjusted to the individual.

Flexibility is a discernible trait of the proposed instructional mode. Individualized instruction as herein proposed begins with an appraisal of the learner. Instruction is then adapted to the individual. Within a reasonably short time, the effectiveness of that treatment is judged for the purpose of adjusting activities to the learner once more. This cycle, which is brief, in time, appears as an appropriate plan for individualizing instruction.

Flexibility is carefully linked to self-development which is another unique feature of the Pittsburgh model. The adjustments previously cited in program and instruction enable self-development in a gross manner. However, underlying this focus is the reasonable assumption that students will relate to pupils in a more helpful manner if the preparation period is marked by accepting and helping behavior by the faculty.

Self-development has another dimension. It will be noticeable in the prolonged attention to group process in the model. By this technique, the student will learn how to help others identify personal strengths and weaknesses. In so doing, students will gain new insights into their own behavior.

The teacher educators who prepared this model believe that individualized instruction is a means to a more significant goal. It will be a useful means only if it helps each child in his quest for identity. This is an endeavor of the highest priority. It is an endeavor which cannot rely totally on good equipment and material. It is an endeavor which progresses on the basis of human relationships. Thus, the teacher, or the student of teaching, must be prepared to fill this critical role. This is the contribution of self-development. For as the teacher knows himself, he will be better equipped to help others know themselves.

Learning in the fashion of the Pittsburgh model also is marked by the concepts of mastery and efficiency. With regard to mastery, the trainee will be expected to demonstrate that learning goals have been met. Movement to another set of goals will be predicated on previous indications of mastery. However, mastery will not imply rigid standards of performance for all trainees.

Efficiency is related to the flexibility feature. In relation to efficiency, the program will be adjusted to accommodate individuals in terms of what they know, how they learn, and what they select to learn. Thus, a flexible program is essential if learning efficiency is to be recognized.

Individualized instruction is a demanding pursuit which requires the talents and support of the entire profession. Unilateral institutional action is unthinkable as a solution to teacher training problems in America.

Individualization is understood to mean planning with, therefore, one institution may not prescribe explicitly for another. Each implementing faculty must study and refine components according to the unique factors integral to its setting.

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